

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all previous claims, and listings of claims, in the application:

Listing of Claims:

Claim 1 (Previously Presented): A chuck device for containers comprising:

a supporting structure;

a pair of arms rotatably supported on said supporting structure by way of a pair of arm shafts, chuck claws for grasping a container being disposed on ends of said pair of arms that open and close in tandem with a rotation around said arm shafts; and

an operation member capable of being externally operated;

wherein:

inward from said pair of arms is disposed a first drive section capable of integrally rotating around said arm shaft of a first arm and being integral with said first arm, and a second drive section disposed further toward said end of said arm than said first drive section and capable of rotating integrally around said arm shaft of a second arm and being integral with said second arm;

a biasing mechanism which biases said pair of arms around said arm shafts in a direction of closing said ends of said arms;

a motion input mechanism disposed between said operation member and said first drive section which converts motion accompanying external operation of said operation member to a rotation motion of said first drive section centered around said arm shaft; and

a coupling mechanism disposed between said first drive section and said second drive section which converts rotational motion of said drive section around said arm shaft to a rotational motion of said second drive section around said arm shaft.

Claim 2 (Previously Presented): A chuck device as described in claim 1 wherein said motion input mechanism comprises a cam mechanism to convert a motion of said operation member to rotation motion of said first drive section.

Claim 3 (Previously Presented): A chuck device as described in claim 2 wherein: said cam mechanism of said motion input mechanism is equipped with an arm drive cam supported by said support structure to allow rotation around a cam axis line parallel to said arm shaft, a cam surface being formed on an outer perimeter of said arm drive cam;

said arm drive cam being disposed opposite from said second drive section relative to said first drive section;

such that said arm drive cam being rotated by operation of said operation member from outside;

as said arm drive cam rotates, said cam surface of said arm drive cam moves back and forth between a position where said first drive section is pushed out toward said second

drive section and a position where said first drive section is retracted to an opposite side from said second drive section.

Claim 4 (Original): A chuck device as described in claim 3 wherein a first roller that comes into contact with said cam surface of said arm drive cam is disposed on said first drive section.

Claim 5 (Original): A chuck device as described in claim 3 wherein:
a roller shaft parallel to said arm shaft is disposed on said first drive section; and
on said roller shaft, there is disposed a first roller coming into contact with said cam surface of said arm drive cam, and a second roller coming into contact with said second drive section.

Claim 6 (Previously Presented): A chuck device as described in claim 3 wherein a support section is disposed on said cam surface of said arm drive cam to support said first drive section at said position pushed out toward said second drive section.

Claim 7 (Previously Presented): A chuck device as described in claim 1 wherein said coupling mechanism comprises a cam mechanism to convert rotation motion of said first drive section to rotation motion of said second drive section.

Claim 8 (Original): A chuck device as described in claim 7 wherein said cam mechanism of said coupling mechanism is equipped with a cam surface disposed on said second drive section and coming into contact with said first drive section.

Claim 9 (Previously Presented): A chuck device as described in claim 1 wherein said biasing mechanism includes a spring disposed between said support structure and said second arm and biasing said second arm so that said chuck claws are biased in a closing direction.

Claim 10 (Previously Presented): A chuck device as described in claim 1 wherein said biasing mechanism includes torsion coil springs on each of said pair of arm shafts to bias said pair of arms so that said ends are biased in a closing direction.

Claim 11 (Previously Presented): A chuck device as described in claim 3 wherein:

said biasing mechanism includes, torsion coil springs disposed on each of said pair of arm shafts to bias said pair of arms so that said ends are biased in a closing direction; and

both ends of a cam shaft rotatably supporting said pair of arm shafts and said arm drive cam are supported by said supporting structure.

Claims 12-19 (Cancelled)

Claim 20 (Currently Amended): ~~A chuck device as described in claim 18~~
~~wherein: In a chuck device wherein a chuck claw is removably mounted on an end of an~~
~~arm driven to perform a grasping action,~~

a chuck device wherein:

a cylindrically indented bearing surface is disposed on said arm;

a holding piece equipped with a cylindrical outer perimeter surface curved along
said bearing surface is disposed on said bearing surface using a bolt;

a chuck bearing is disposed on said arm to receive reaction generated on said chuck
claw during said grasping action;

said bearing surface is formed to connect with a side of said chuck bearing section
that comes into contact with said chuck claw;

said bolt is set up to attach to said bearing surface in such a direction that, going
toward a rear end of said arm, said bolt extends from said bearing surface toward a back
surface relative to a side of said arm in contact with said chuck claw; and

an attachment base curved along said bearing surface and capable of being inserted
between said support piece and said bearing surface disposed on said chuck claw.

Claim 21 (Currently Amended): ~~A chuck device as described in claim 20~~
~~wherein: In a chuck device wherein a chuck claw is removably mounted on an end of an~~
~~arm driven to perform a grasping action,~~

a chuck device wherein:

a cylindrically indented bearing surface is disposed on said arm;

a holding piece equipped with a cylindrical outer perimeter surface curved along
said bearing surface is disposed on said bearing surface using a bolt;

a chuck bearing is disposed on said arm to receive reaction generated on said chuck
claw during said grasping action;

said bearing surface is formed to connect with a side of said chuck bearing section
that comes into contact with said chuck claw;

said bolt is set up to attach to said bearing surface in such a direction that, going
toward a rear end of said arm, said bolt extends from said bearing surface toward a back
surface relative to a side of said arm in contact with said chuck claw; and

an attachment base curved along said bearing surface and capable of being inserted
between said support piece and said bearing surface disposed on said chuck claw;

a slit is formed on said attachment base of said chuck claw to allow said bolt to pass
through;

an arm shaft rotatably supporting said arm is disposed behind said bearing surface;
and

said bolt is screwed in between said bearing surface and said arm shaft.

Claims 22-27 (Cancelled)